REMARKS

This application pertains to a novel process for the thermal decoking of a zeolite catalyst.

Claims 1-15 are pending, although claims 10 and 11 are withdrawn from consideration as drawn to a nonelected invention. The claims under examination are therefore claims 1-9 and 12-15.

The Examiner has imposed a restriction requirement between claims 1-9, 12-15 (denoted Group I by the Examiner) and claims 10 & 11 (denoted Group II by the Examiner), and Applicants provisionally elected the claims of Group I, claims 1-9 and 12-15. Applicants now affirm said election.

It is respectfully requested that upon the allowance of elected subject matter, the claims drawn to the nonelected subject matter be rejoined.

The Examiner appears to be making a further restriction requirement in the instant office action, but it is not entirely clear what the restriction requirement is. In this further restriction requirement the Examiner identifies Group I as claims 1-9 and 12-15, which Applicants have already elected, and Group II as claims 14 and 15, which are, however, a part of Group I. Further, the Examiner refers to claims 14 and 15 as being directed to apparatus; but said claims are process claims, not apparatus claims. It therefore appears that this apparent 2nd restriction requirement is really just an

articulation of the one and only "first" restriction requirement. In any case, Applicants have already elected Group I. To the extent necessary, Applicants again elect Group I.

Clarification is requested however.

The Examiner indicates that no drawing was submitted in the National Stage. There is, however, a drawing attached to the English translation that was filed July 13, 2004. If the Examiner will check the English language copy of the specification which is shown on PAIR as the very first document at to bottom of the image file wrapper which is entitled "Documents submitted with 371 Applications", she will find the drawing as the last page of the specification (i.e., after the claims). Accordingly, it is believed that no further drawing is required and the requirement that Applicants submit a drawing should be withdrawn.

Claim 9 stands rejected under 35 U.S.C. 112, second paragraph, because the Examiner views the expression "the greater amount" as indefinite. This expression is, however, widely used in U.S. Patent claim practice, and is generally accepted as being definite. A substance can clearly be divided into two parts, one being the "greater amount" and the other being the "lesser" amount. The "greater" amount is clearly understood to be larger than the "lesser" amount.

Applicants did a search of patents on the USPTO web site for claims which included the expression "the greater amount". This search turned up 2,615 patents

which had claims that included that expression. A copy of the first 50 "hits" is annexed hereto.

Clearly the expression "the greater amount" is acceptable claim language, and the rejection of claim 9 under 35 U.S.C. 112, second paragraph, should be withdrawn.

If, however, the Examiner would prefer, Applicants would be willing to substitute --the major part-- for "the greater amount" (see col. 9, line 32 of the Grosch reference).

Turning now to the art rejections, claims 1-4, 6 and 13 stand rejected under 35 U.S.C. 102(b) as anticipated by Grosch et al (US 6,380,119).

Initially, it must be noted that Applicants' claims pertain to a process for **decoking** an **aluminosilicate** zeolite catalyst used in a process of forming lower olefins from higher olefins, or of forming methanol from dimethyl ether.

Grosch, by contrast, has absolutely nothing to do with decoking, or with aluminosilicate catalysts.

Although Grosch acknowledges the existence of aluminosilicate catalysts at column 2, line 42, and professes that his process can be used with any zeolite catalysts at lines 40 and 41, the fact of the matter is that the entire text of Grosch's disclosure is

directed to titanium zeolites.

In addition, Grosch is concerned with regenerating (not decoking) catalysts which have become deactivated in the epoxidation of olefins with hydroperoxide (col. 1, line 6). There is no evidence provided by the Examiner that coking is a problem with catalysts used in this process, and therefore no evidence that any decoking is ever needed.

Grosch is concerned with the removal of **organic coatings** that have formed on the titanium zeolite catalysts used in the epoxidation processes (col. 2, lines 11-12). This is done by first, in a Stage I, heating the catalyst to a temperature at which the organic coatings begin to decompose (col. 9, lines 17-22). The major part of the organic coatings is carbonized to form hydrogen, water and carbon-containing substances, which are removed (col. 9, lines 33-38). In stage II, the carbonized organic coatings (which apparently were not completely removed in stage I) are burned off (col. 9, lines 53-54). In stage III the oxygen content of the gas stream is increased to finish off the burning of the carbonized coatings. Optionally, the catalyst is then cooled in a stage IV, as the Examiner points out.

By contrast Applicants' process, which concerns a different catalyst that has been subjected to a different history, i.e. coked; not merely coated with an organic coating, first **rinses** any organic coatings off of the catalyst and expels them from the reactor in a nitrogen stream that has been heated to an entrance temperature of from

460°C to 500°C.

After this is done, Applicants, in a second step, cool the catalyst to a temperature of less than 460°C.

There is absolutely no teaching or suggestion anywhere in the Grosch reference about cooling the catalyst after his stage I to a temperature which is below the temperature at which stage I was conducted and before introducing oxygen. Grosch, by contrast, in stage II just adds oxygen to the gas stream that is already entering his reactor in stage I, without any intermediate cooling step. See, for example, Grosch's Example 4, where the deactivated catalyst was heated to 500 °C in a stream of nitrogen gas and then the oxygen content of the nitrogen gas stream was increased, i.e., at 500°C.

Although Grosch describes his treatment step I as being conducted over a temperature range of about 250 - 800°C, he also describes his stage I as operating over that same temperature range, and nowhere teaches, suggests or even implies that any intermediate cooling take place before stage II is commenced. See column 9, lines 17-50.

It is respectfully pointed out that removing a hydrocarbon coating, as in the Grosch reference, is quite different in character than the burning off of coke deposited on/in an alumosilicate zeolite catalyst, and may be referred to as "oxidation assisted

desorption of hydrocarbons". The main difference between the two processes is the extent of exothermicity (i. e. , heat evolution) experienced during the process. The oxidation assisted desorption of hydrocarbons, as in the Grosch reference, can be expected to have a small to medium degree of exothermicity; therefore, a separate cooling step in advance of the oxygen addition is not necessary. In contrast, in burning off the coke deposited on/in a alumosilicate zeolite catalyst, cooling down the catalyst prior to oxygen addition is essential, since the exothermicity of the reaction is high, and may lead to extreme overtemperatures in the catalyst particles, leading to deterioration or, in the worst case, destruction of the catalytic activity. Moreover, since the normal operating temperature of the catalyst is quite close to its upper temperature limit , cooling down from normal operating temperature to the (start) temperature of decoking prior to oxygen addition is important for not exceeding the maximum catalyst temperature.

Accordingly, Applicants' claims are directed to removing a different substance (coke vs. organic coatings) from a different catalyst (aluminosilicate vs. titanium zeolites) by a different process (intermediate cooling step vs. no intermediate cooling step) than Grosch is. The Grosch reference therefore cannot in any way be read as anticipating or suggesting the process defined in Applicants' claims, and the rejection of claims 1-4, 6 and 13 under 35 U.S.C. 102(b) as anticipated by Grosch et al (US 6,380,119) should be withdrawn.

Claims 5 and 14-15 stand rejected under 35 U.S.C. 103(a) as obvious over Grosch et al. US 6,380,119 in view of Crocco et al US 5,741,749.

The differences between the invention defined by Applicants' claims and anything that can be found in the Grosch reference have been discussed above. The Examiner turns to the Crocco reference for a teaching that heating conditions can be optimized without undue experimentation. The general statement that heating conditions can be optimized without undue experimentation cannot in any way overcome any of the differences discussed above with respect to the Grosch reference. Moreover, there is nothing in either reference that would suggest that the "heating conditions" of Grosch are a variable that is "optimizable".

The rejection of claims 5 and 14-15 under 35 U.S.C. 103(a) as obvious over Grosch et al. US 6,380,119 in view of Crocco et al US 5,741,749 should therefore now be withdrawn.

Claims 7-9 stand rejected under 35 U.S.C. 103(a) as obvious over Grosch et al US 6,380,119. The differences between Applicants' claims and anything that can be found in the Grosch reference have been discussed above, and that discussion applies to the present rejection as well as to the one above. The Examiner contends that one would be motivated to modify the invention of Grosch by employing recycle streams and thermal treatment of contaminated nitrogen streams because they are within the level of skill in the art. The issue is not whether or not something is or is not within the level of

skill in the art, but whether or not there is some reason found in the references to make the modifications proposed by the Examiner. Simply being capable of doing something does not provide the mental seed that would drive one to do it. Moreover, even if one were to somehow recycle or thermally treat Gosch's nitrogen streams, Applicants' invention would not be arrived at, for the reasons given above.

The rejection of claims 7-9 under 35 U.S.C. 103(a) as obvious over Grosch et al US 6,380,119 should therefore now be withdrawn.

Finally, claim 12 stands rejected under 35 U.S.C. 103(a) as obvious over Grosch et al US 6,380,119 in view of Moeller et al US 5,981,819.

The differences between Applicants' claims and anything that can be found in the Grosch reference have been discussed above, and that discussion applies to the present rejection as well as to the one above. The Examiner contends that the process of Grosch is capable of decoking the catalyst of the Moeller process because the method of Moeller is substantially similar to the process of Grosch because aluminosilicates must be decoked. The need to decoke aluminosilicates will not in any way overcome the differences between Applicants' process and anything that can be found in the Grosch reference. In addition, the mere fact that aluminosilicates need to be decoked does not suggest to anyone that Grosch's process is capable of decoking Moeller's catalyst. Nowhere does Grosch teach or suggest anything at all about decoking a catalyst or even of any treatment of an aluminosilicate for anything at all.

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The rejection of claim 12 under 35 U.S.C. 103(a) as obvious over Grosch et al US 6,380,119 in view of Moeller et al US 5,981,819 should therefore now be withdrawn.

In view of the present remarks it is believed that claims 1-15 are now in condition for allowance. Reconsideration of said claims by the Examiner is respectfully requested and the allowance thereof is courteously solicited.

CONDITIONAL PETITION FOR EXTENSION OF TIME

If any extension of time for this response is required, Appellants request that this be considered a petition therefor. Please charge the required petition fee to Deposit Account No. 14-1263.

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Respectfully submitted,
NORRIS, McLAUGHLIN & MARCUS

By _____
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10/501,449 **Method for thermally decoking a zeolite catalyst**

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	PAT. NO.	Title
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4	7,341,985	2-Hydroxy-3-alkoxypropyl sulfides, sulfones, and sulfoxides: new surface active agents
5	7,341,603	Prosthetic foot with energy transfer including variable orifice
6	7,337,298	Efficient class memory management
7	7,336,041	Automatic light dimmer for electronic and magnetic ballasts (fluorescent or HID)
8	7,335,012	Apparatus for fabricating reinforced composite materials
9	7,334,143	Computer power conservation apparatus and method that enables less speculative execution during light processor load based on a branch confidence threshold value
10	7,333,511	Dynamically channelizable packet transport network
11	7,333,114	System and method for parallel execution of data generation tasks
12	7,332,049	Method for fabricating reinforced composite materials
13	7,331,370	Progressive resistance lifting mechanism for a window covering
14	7,331,263	Surgical screwdrivers with torque control and methods of use
15	7,331,232	Measurement method and biosensor apparatus using resonator
16	7,331,107	Pivot axis for a shaving cartridge
17	7,329,101	Ceramic composite with integrated compliance/wear layer
18	7,327,681	Admission control method in internet differentiated service network
19	7,326,441	Coating systems containing beta phase and gamma-prime phase nickel aluminide
20	7,324,212	Optical encoder having slanted optical detector elements for harmonic suppression
21	7,320,968	Pharmaceutical composition
22	7,320,248	Method and apparatus for determining imbalance correction weights for a rotating body

23 7,319,885 Radio communication apparatus and method
24 7,319,027 T Thermostable Omega-Transaminases
25 7,317,130 T Method for the hydroformylation of olefinically unsaturated compounds, especially olefins, in the presence of cyclic carbonic acid esters
26 7,316,464 T Ink jet print apparatus and ink jet print method
27 RE39,994 T Polyetheresteramides and compositions of antistatic polymers containing the same
28 7,314,428 T Downshift control for automotive automatic transmission
29 7,312,962 T Intelligent overcurrent protection for power supplies
30 7,310,738 T Multifunctional control of cooling systems for computers
31 7,310,627 T Method of searching for text in browser frames
32 7,309,726 T Straight-oil finishing composition and fiber yarn treated therewith
33 7,308,361 T Method of coordinating and stabilizing the delivery of wind generated energy
34 7,303,941 T Methods and apparatus for providing a power signal to an area array package
35 7,303,650 T Splittable cloth like tissue webs
36 7,300,562 T Platinum alloy using electrochemical deposition
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39 7,293,400 T System and method for sensor validation and fusion
40 7,293,285 T Method and system for providing field scalability across a storage product family
41 7,292,690 T Video scene change detection
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43 7,292,024 T Defect mitigation in display panels
44 7,291,352 T Methods and compositions for oral delivery of Areca and mate' or theobromine
45 7,290,387 T Control device of internal combustion engine
46 7,289,633 T System and method for integral transference of acoustical events
47 7,288,784 T Structure for amorphous carbon based non-volatile memory
48 7,288,091 T Anti-microbial electrosurgical electrode and method of manufacturing same
49 7,287,509 T Direct injection alcohol engine with variable injection timing
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